Gateway Research Organization

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GRO NEWS

SPRING CLEANING

As the weather becomes more and more like spring, we begin to realize seeding is just around the corner…and where did the time go?! Our February AGM and subsequent March organizational meeting were very exciting for GRO, as our board grew from 8 to 11 directors.

Our AGM was a full day with a little bit of information for both the grain producers and the livestock producers. In the morning livestock health and in particular welfare issues were discussed along with the Verified Beef Program. Farm On gave an engaging talk on social media and the potential value to producers when you know how to use it. Our afternoon kept us going with presentations on fababean production, updated us on canola agronomics and agronomic pests, and we heard about Growing Forward 2 programs. We had a special guest from Leader Tours show our group a few agricultural tour options. Of extra interest is Agritechnica, which is now the world's leading trade fair for agricultural machinery and equipment. AGRITECHNICA is being held in Hanover, Germany in November of 2015.

We have also been working diligently to get our website up and going, **www.gatewayresearchorganization.com.**

As a heads up our website will contain information on staff, board of directors, events, projects and publications. All of this available at the click of a button. Be sure to keep posted on our website progress.

We would also like to highlight our April event:

"Generating Electricity from the Sun: A one-day workshop on grid– tie solar options for Alberta farmers"

Please see page 4 for details

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@GatewayResearch

Gateway Research Organization (GRO)

Phone: (780)349-4546

Email: groforage@telus.net

Box 5865

Westlock, AB

T7P 2P6

SCIENTIST SAYS PLANTS — NOT SOIL — ARE THE BUILDING BLOCKS OF LIFE

Article from the Alberta Farmer Express published Novemeber 27, 2014 by Alexis Kienlen.

Though many claim that soil is the building block of life, Christine Jones has a different approach.

"It's not the soil that is the building block of life. It's the plants," the internationally acclaimed soil scientist and agricultural consultant said at a sold-out appearance in Olds.

The Australian also drew a large crowd in Rycroft, including a High River producer who was so eager to hear her that he booked a ticket to fly to the Peace Country to attend the event.

In Olds, Jones spoke about the critical role that mycorrhizal fungi and microbes play in building healthy plant stands and how management of plants helps build soil.

"Up to 85 to 90 per cent of the nutrient acquisition and plant needs is controlled and regulated by microbes," she said.

Australian soil scientist Christine Jones challenges conventional thinking by arguing microbes and fungi are the key to soil health

INTERNATIONAL YEAR OF SOILS

Did you know 2015 has been declared the international year of soils by the UN general assembly.

Keeping this in mind there will be a strong focus this year on all things soils.

A few soils related events GRO is excited to be hosting will be:

Peter Donovan of the Soil Carbon Coalition JUNE 25, 2015

(http://soilcarboncoalition.org/)

And

Dr. Christine Jones

If you missed Dr. Jones last year at her two Alberta presentations this will be your opportunity to hear her speak on her regional Alberta tour.

(http:/www.amazingcarbon.com/)

Look for this event in July

ARTICLE CONTINUED FROM ABOVE

The key is the relationship between mycorrhizal fungi and plant roots, she said. The fungi link plants together, and help exchange water, nutrients, and even information (in the form of chemical signals that can warn, for example, that pests or diseases are attacking nearby plants).

They also create energy in the form of what Jones calls "liquid carbon" that is used by microbes to create biologically available nitrogen.

"It's not about adding things to the soil to fix it," said Jones, a critic of heavy use of chemical fertilizers, which she says harm soil quality.

Instead, she said, farmers need to increase plant diversity on their fields and pastures, and foster plant growth for as long as possible in a season in order to boost the amount of photosynthesis. Both are key to building healthy and diverse microbial populations in soil, she said.

She outlined two pathways to build soil carbon: The decomposition pathway, which occurs when plants break down, and the liquid carbon pathway, which occurs when plants add sugars that stimulate microbial activity.

"This is why plant diversity is so important," said Jones. "We need to have a diversity of functional roots in the soil.

"It's like a hidden village where you have a bank and a gas station and a post office and school and all those things. That's what makes the community work — having all those things there. When you start taking those things away, it's not going to work. To have functional groups of microbes in the soil, you have to have different plants above ground."

Microbial nitrogen fixing can happen on any plant, provided there are aggregates around the roots. This can be seen when soil sticks to the roots.

Some producers may not want to hear it, Jones said, but adding chemical fertilizers can actually be detrimental because they can interfere with the interaction of the soil microbes. It's possible to reduce or even eliminate chemical fertilizers, but plants first need to be weaned off them until rich microbiological activity is restored, she said.

Mob Grazing in Alberta, 2011

RECENT DATA SUPPORTS SOIL HEALTH BENEFITS OF ADAPTIVE HIGH STOCK DENSITY GRAZING BY ALLEN R. WILLIAMS, PH.D.

In the fall of 2014 soil data was collected from three distinct cattle farms located in Northeast Mississippi. The farms were in very close proximity to each other and were comprised of the same soil types, topography, and annual average rainfall. The only primary difference was the grazing strategy employed by each farm.

The three farms selected were:

1. **Farm 1** – Practicing Adaptive High Stock Density Grazing (**AHSD**) for the past five years. Prior to that the farm was alternately in row crop, dairy, and CRP for the last several decades. Stock density during that time period would strategically alternate between 100,000 lbs/acre and over 500,000 lbs/acre, with cattle being moved daily to fresh pasture. Soil conditions were poor in year 1 with soil organic matter averaging less than 1.5%. A cow/calf operation has been utilized on the farm for the past five years with the cattle being used as a tool for land improvement.

2. **Farm 2** – Practicing a more conventional grazing methodology (**CG-Rotation**) with two to four week planned rotations of cattle from pasture to pasture. Land has been continuously in pasture and grazing for the past 50 years alternating between cow/calf and stocker grazing.

3. **Farm 3** – Practicing continuous grazing methodology (**CG-Cont**) where cattle have been free to graze the majority of the farm without restriction to movement. This farm has been in continuous grazing (primarily cow/calf) for the past 40+ years.

In early November of 2014, a team of scientists collected soils data from each farm on the same day. Random locations were selected on each of the three farms and soil pits were dug to a depth of three feet. Soil samples were collected for analysis within every six inch layer from the soil surface down to three feet (36 inches). Observations were made and recorded pertaining to root structure and development, presence of soil organisms, soil texture, and soil aggregation.

STUDY FINDINGS

Immediate observations were that root structure and development, including root depth and mass, were significantly greater at the AHSD farm compared to the CG-Rotation and CG-Cont farms. Root growth was observed all the way down to and past the three foot depth on the AHSD farm. On the other farms, root growth did not reach the three foot depth. In addition, there were noted differences in apparent soil life with earthworms immediately present in the soil of the AHSD farm. Earthworm populations were significantly lower at the CG-Rotation and CG-Cont farms. Likewise, soil texture, aggregation, and appearance was significantly better at the AHSD farm when compared to the CG-Rotation and CG-Cont farms.

In summary, results show that with just 5 years of AHSD grazing, significant results can be achieved in terms of building soil organic matter, soil carbon, and overall soil health. Even with what are considered (by traditional standards) good grazing practices, AHSD grazing appears to yield results and benefits that far exceed more relaxed grazing rotations. The ability to build such significant differences within a relatively short period of time make AHSD grazing an attractive tool for land improvement and remediation.

For tables and data please contact GRO.

CALMAR CROPPING SERIES HOSTED WITH PARTNERS

Thursday March 12th ARECA in partnership with GRO, WCFA and GWFA hosted producers in Calmar, AB to discuss crop production. The speaker and topic line up consisted of:

Lee Melvill spoke on crop outlooks, situations & strategies for 2015, gross margin prices, the elephants in the room. Referring to the plummeting price of oil and rapid rise of US currency as well as the sliding Canadian dollar & Euro. He commented on the perception that the size of each crop is what determines the price.

Pulse production was touched on by two speakers. Tom Carleton with Sturgeon Valley Fertlizer lead producers in a discussion on Fababean production. Craig Lindholm a local producer discussed pea production.

Trevor Wallace, nutrient management specialist with Alberta Agriculture discussed soil health and in particular soil types, amendments and compaction.

Micheal Harding, plant pathology research scientist with Alberta Agriculture spoke on disease management as well as different diseases and strains that are emerging.

Be sure to pre-register for our Solar Workshop April 28th so you wont miss out! Call (780)349-4546 or text (780)307-7157

GENERATING ELECTRICITY FROM THE SUN: A ONE-DAY WORKSHOP ON GRID– TIE SOLAR OPTIONS FOR ALBERTA FARMERS

When: This event is being held **Tuesday April 28th** in partnership with the Rochester Ag Society (ROAGS).

Where: Rochester Ag Society Hall

Time: Registration at 8:30am

Workshop starting at 9am and finishing up at 4:30pm.

Cost: $10/person and Pre Registration is required.

What can you hope to gain from this workshop?

- Understand how utility-intertie solar systems work
- Be introduced to case studies of successful farm-based solar systems including actual performance data.
- Learn how to evaluate their site for equipment location and optimal productivity
- Carry out solar system Return On Investment -calculations
- Understand the steps to a completed installation including interfacing with a contractor, permitting agencies and utilities.
- See examples of equipment
- Be provided with information on Alberta sources for equipment, installers and further resources

About the instructor—Rob Harlan

Rob Harlan is the Executive Director of the Solar Energy Society of Alberta (www.solaralberta.ca), a non-profit organization, which has provided solar education programs in Alberta since 1976. He has taught workshops and classes in solar technologies in the United States and Canada including courses in solar energy at MacEwan University and the Northern Alberta Institute of Technology. Mr. Harlan has provided renewable energy policy consulting to the City of Edmonton and the province of Alberta. Mr. Harlan managed the 2013 Edmonton Federation of Community Leagues Solar and Energy Savings program, which installed solar PV systems on eight community league buildings. He served as the solar site assessor for the Alberta Agriculture's Growing Forward Solar PV Equipment Pilot Program in 2012. In this capacity he visited over 50 Alberta farms to facilitate their process of going solar.

Mr. Harlan is not affiliated with any product or installation company. He is a NABCEP Certified PV Installer. He has been a Solar Contractor, Electrical Contractor and General Building Contractor with twelve years experience designing and installing over 150 solar electric and solar hot water installations.